

DISC

Playing time:	74 minutes, 33 seconds maximum
Rotation:	Counter-clockwise when viewed from readout surface
Rotational speed:	1.2-1.4 m/sec.
Track pitch:	1.6 μm
Diameter:	120 mm
Thickness:	1.2 mm
Center hole diameter:	15 mm
Recording area:	46 mm-117 mm
Signal area:	50 mm-116 mm
Material:	Any transparent material with 1.55 refraction index, such as polycarbonate
Minimum pit length:	0.833 μm (1.2 m/sec.) to 0.972 μm (1.4 m/sec.)
Maximum pit length:	3.05 μm (1.2 m/sec.) to 3.56 μm (1.4 m/sec.)
Pit depth:	Approx. 0.11 μm
Pit width:	Approx. 0.5 μm

OPTICAL SYSTEM

Standard wavelength:	$\lambda = 780 \text{ nm} (7,800\text{\AA})$
Focal depth:	$\pm 2 \mu\text{m}$
$(\lambda/NA \leq 1.75 \mu\text{m}, NA: \text{Numerical Aperture})$	

SIGNAL FORMAT

Number of channels:	2 channels (4-channel recording possible)
Quantization:	16-bit linear quantization
Quantizing timing:	Concurrent for all channels
Sampling frequency:	44.1 kHz
Channel bit rate:	4.3218 Mb/sec.
Data bit rate:	2.0338 Mb/sec.
Data-to-channel bit ratio:	8:17
Error correction code:	CIRC (with 25% redundancy)
Modulation system:	EFM

FIG. 1
PRIOR ART

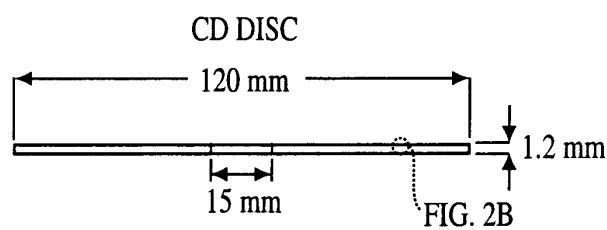


FIG. 2A
PRIOR ART

10000 x MAGNIFICATION

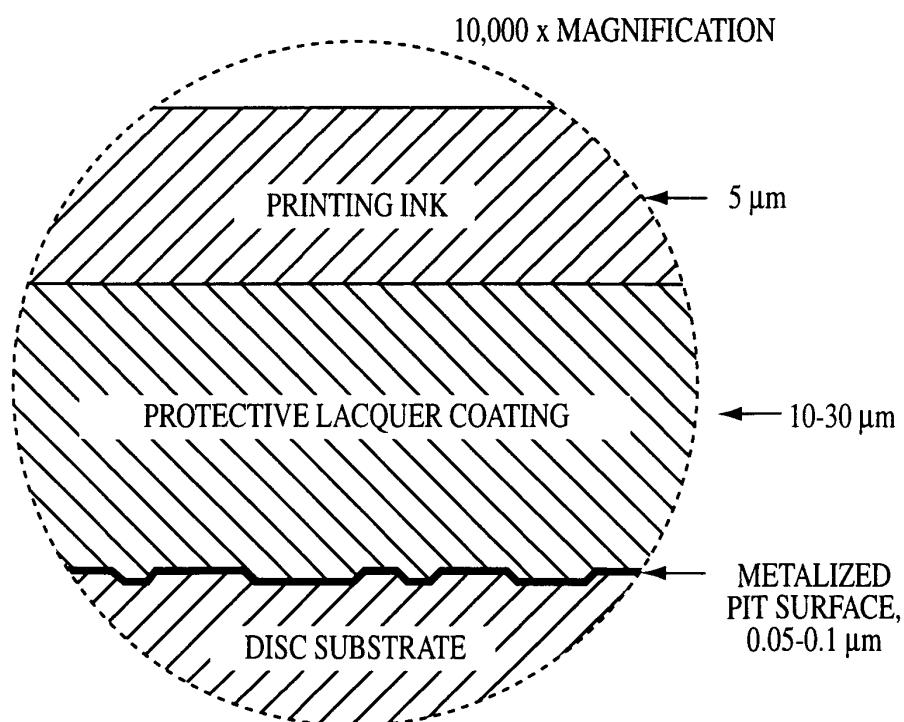


FIG. 2B
PRIOR ART

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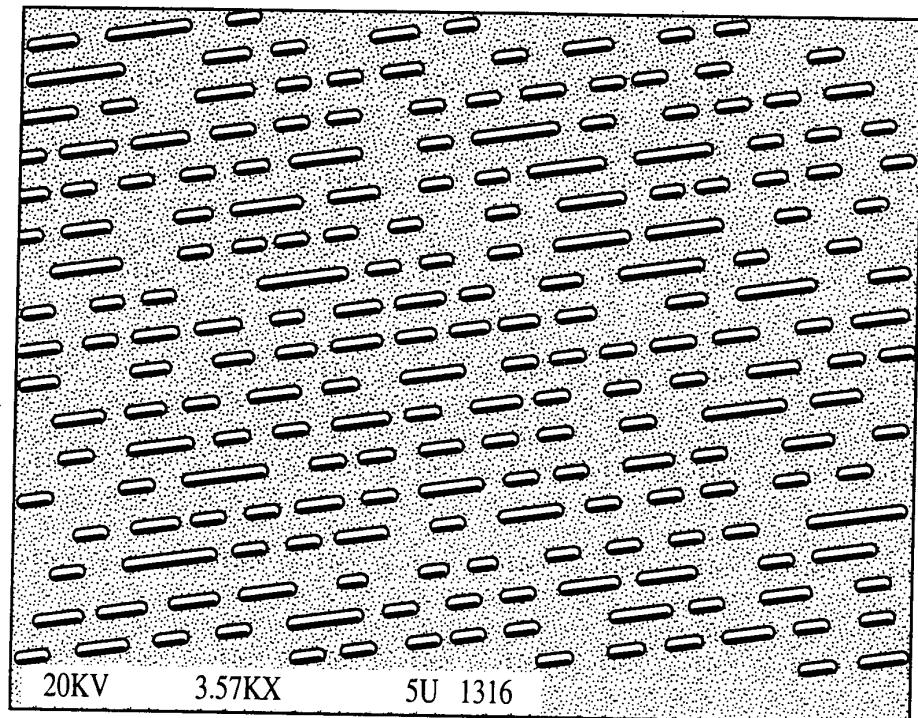


FIG. 3
PRIOR ART

RECORDED IN FEDERAL REGISTER

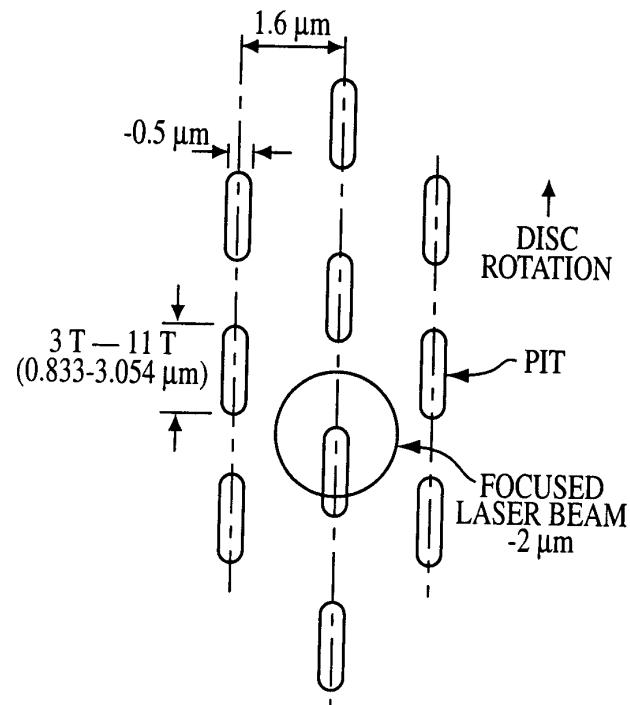


FIG. 4
PRIOR ART

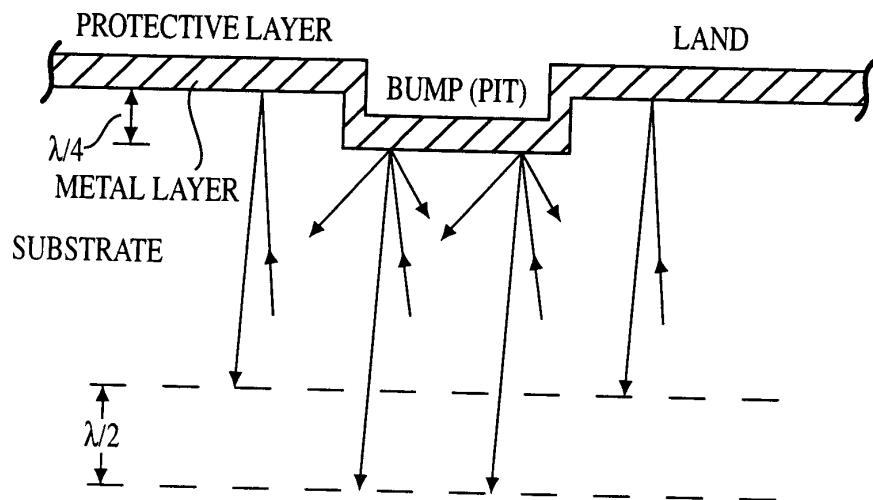
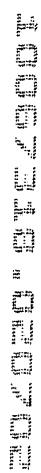


FIG. 5 PRIOR ART

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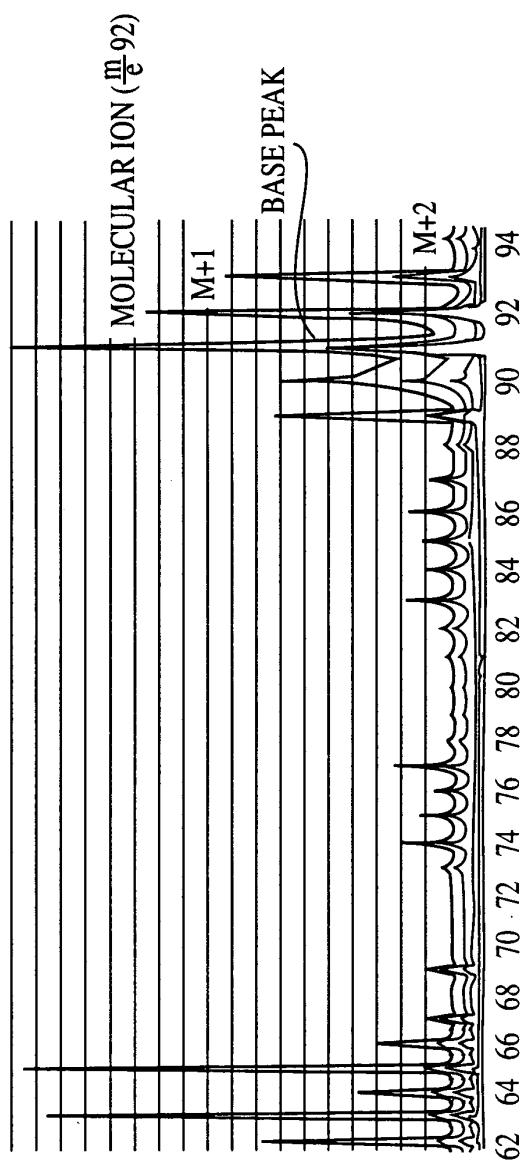


FIG. 6

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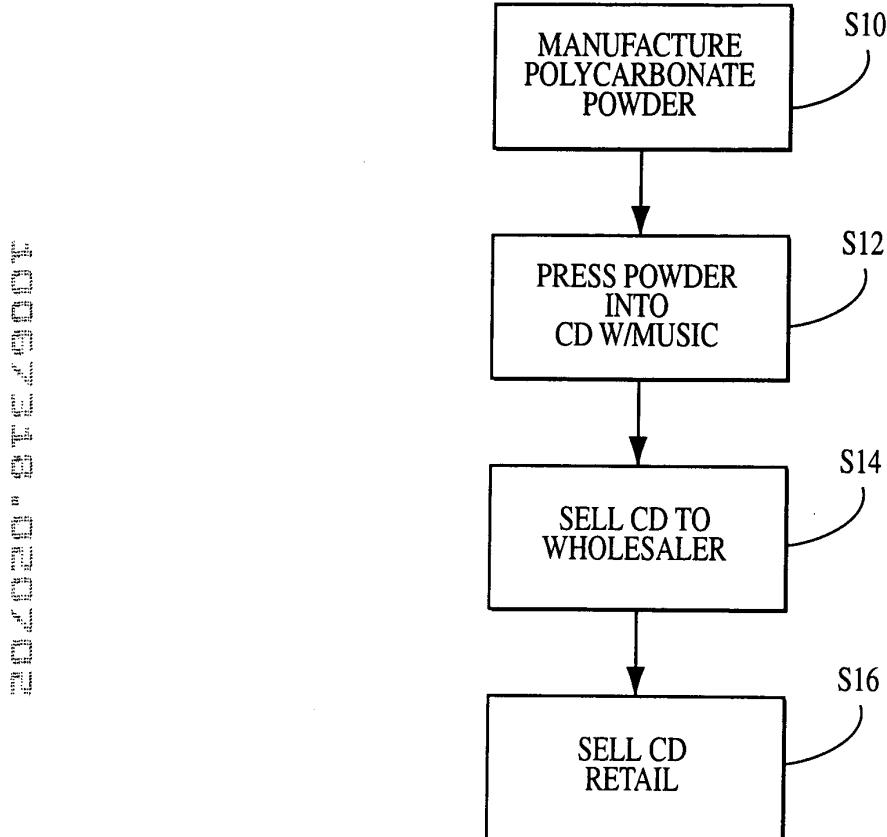


FIG. 7

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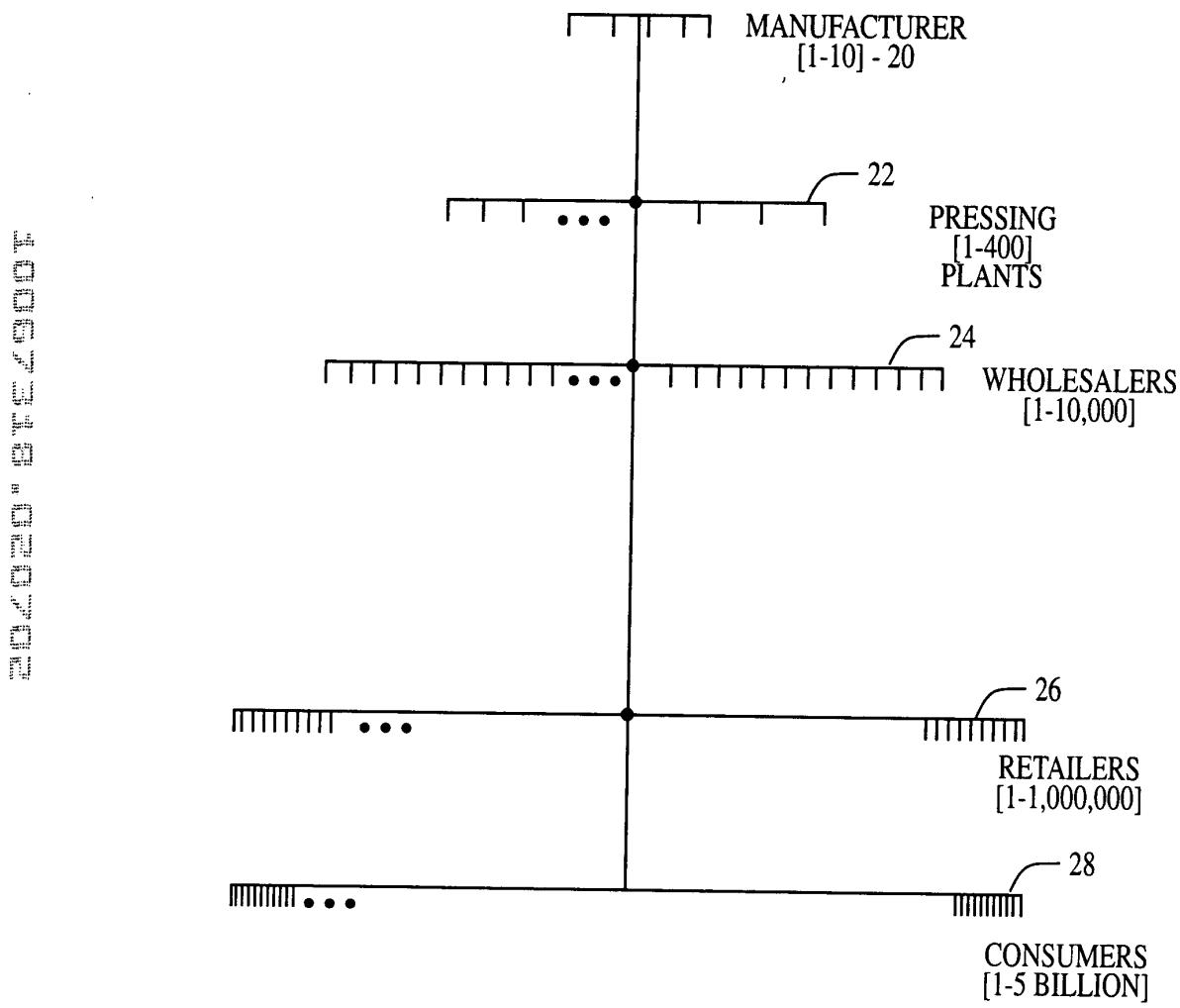


FIG. 8

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COUNTRY	CURRENT ESTIMATED CAPACITY - ALL FORMATS (CD-ROM, CD-AUDIO, CD-VIDEO) (MILLION UNITS)	TOTAL LEGITIMATE DEMAND - ALL CD FORMATS (MILLION UNITS)
BULGARIA	45.0	0.1
CHINA	200.0	26.0
CZECH REPUBLIC	45.0	5.0
HONG KONG	330.0	17.0
ISRAEL	50.0	6.0
MALAYSIA	90.0	4.0
TAIWAN	350.0	32.0
MACAU	100.0	NEGIGIBLE

FIG. 9

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IFPI PRIORITY COUNTRIES IN TERMS OF DOMESTIC PIRACY LEVELS, 1996		
COUNTRY	PIRACY US\$m	PIRACY LEVEL UNITS
RUSSIA	350	70%
BRAZIL	200	45%
CHINA	165	54%
ITALY	105	22%
INDIA	100	30%
MEXICO	70	50%
ARGENTINA	65	30%
SAUDI ARABIA	35	30%
GREECE	22	25%
MALAYSIA	18	20%

FIG. 10

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LEVEL OF DOMESTIC PIRACY				
	OVER 50%	25-50%	10-25%	LESS THAN 10%
EUROPE	BULGARIA CIS ROMANIA RUSSIA	CYPRUS GREECE LATVIA LITHUANIA SLOVENIA	HUNGARY ITALY POLAND	AUSTRIA BELGIUM CZECH REPUBLIC DENMARK FINLAND FRANCE GERMANY ICELAND IRELAND NETHERLANDS NORWAY PORTUGAL SLOVAKIA SPAIN SWEDEN SWITZERLAND UK
MIDDLE EAST/ TURKEY		BAHRAIN EGYPT KUWAIT LEBANON OMAN QATAR SAUDI ARABIA	ISRAEL TURKEY	UAE
ASIA	CHINA PAKISTAN	INDIA	HONG KONG INDONESIA MALAYSIA PHILIPPINES SINGAPORE SOUTH KOREA TAIWAN THAILAND	JAPAN
AFRICA	COTE D'IVOIRE KENYA	NIGERIA	GHANA SOUTH AFRICA ZIMBABWE	
AUSTRALASIA				AUSTRALIA NEW ZEALAND
LATIN AMERICA	BOLIVIA ECUADOR EL SALVADOR HONDURAS NICARAGUA PANAMA PARAGUAY PERU	ARGENTINA BRAZIL COLOMBIA MEXICO URUGUAY VENEZUELA	CHILE COSTA RICA GUATEMALA	
NORTH AMERICA				CANADA USA

FIG. 11

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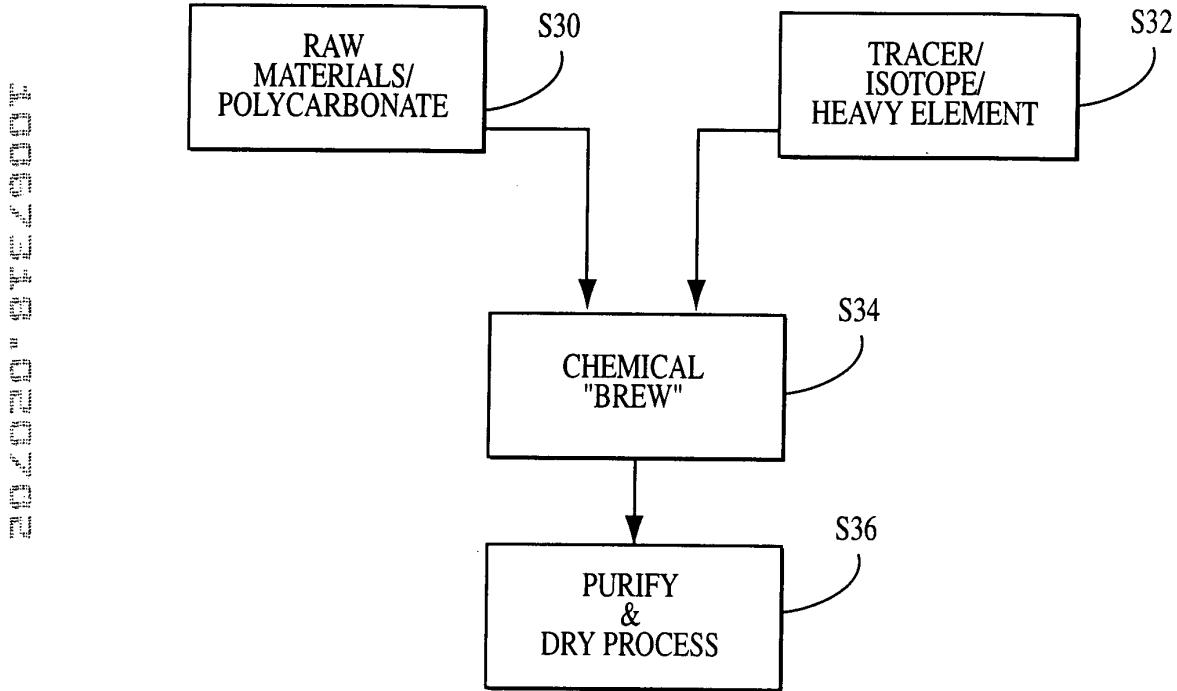


FIG. 12

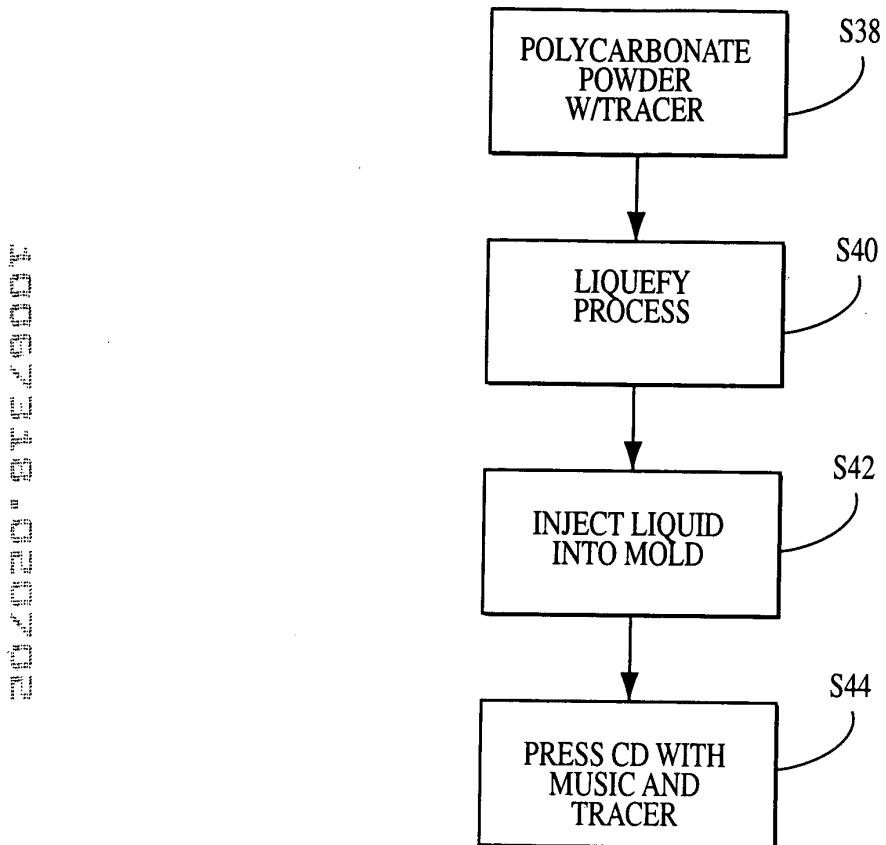
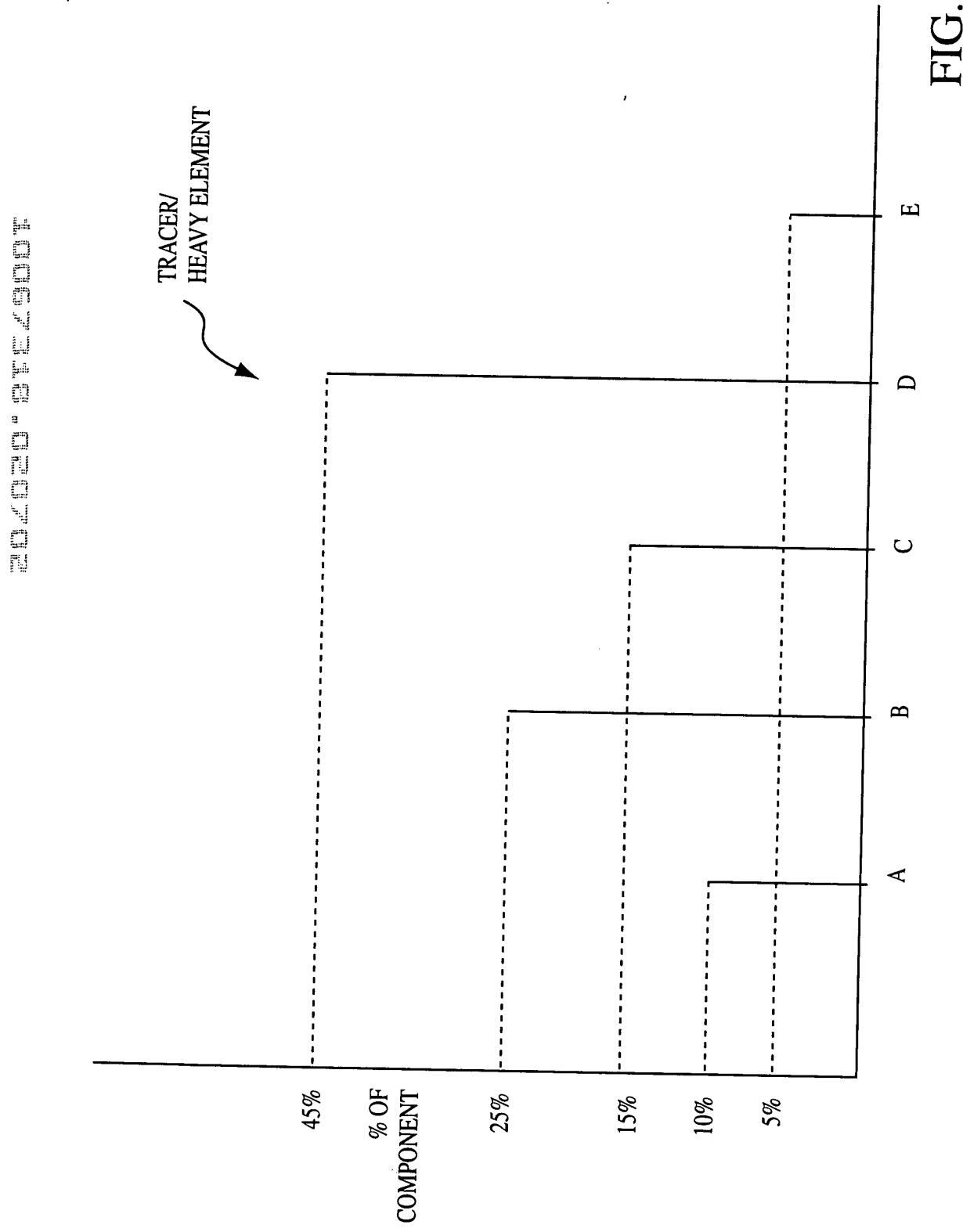
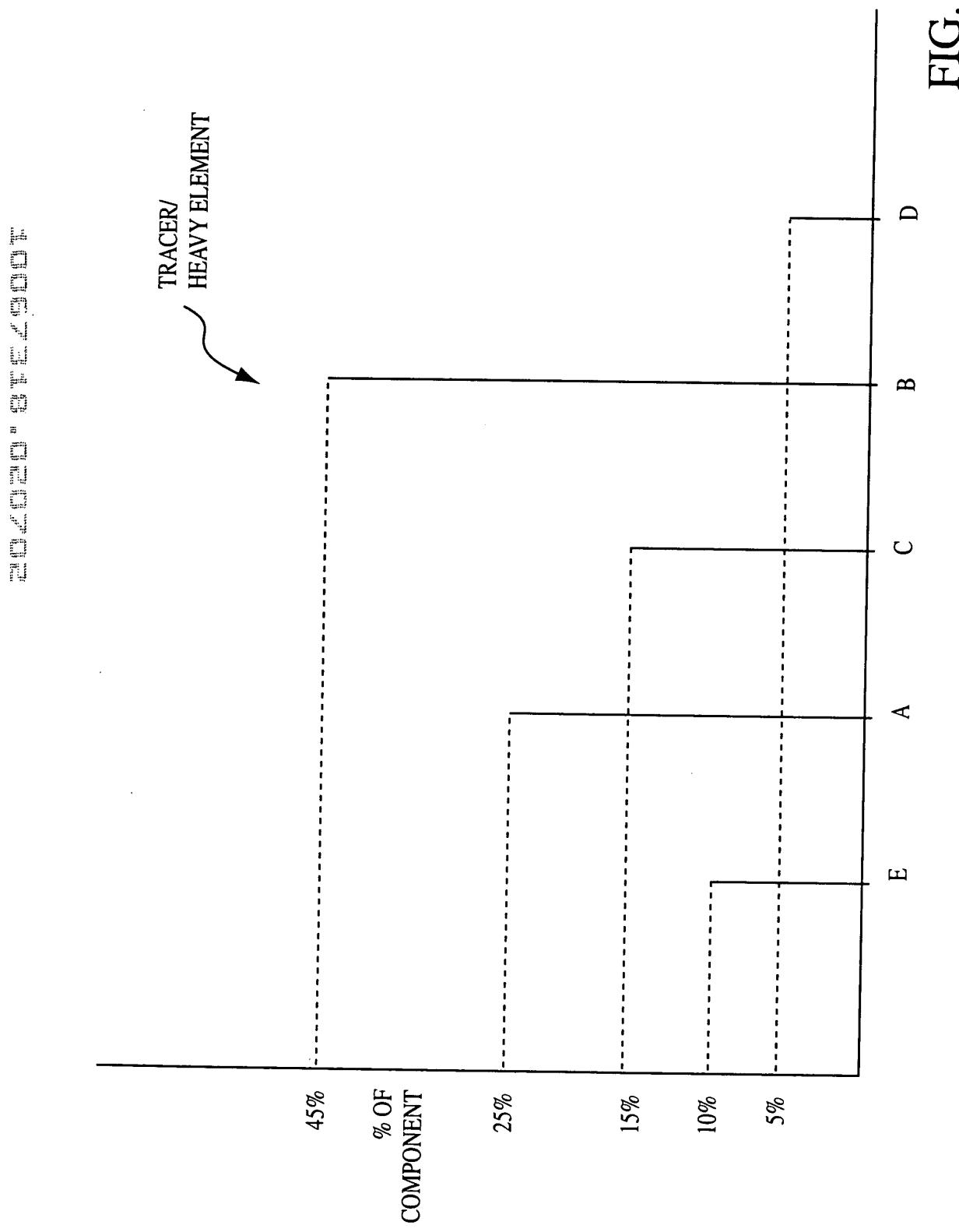


FIG. 13





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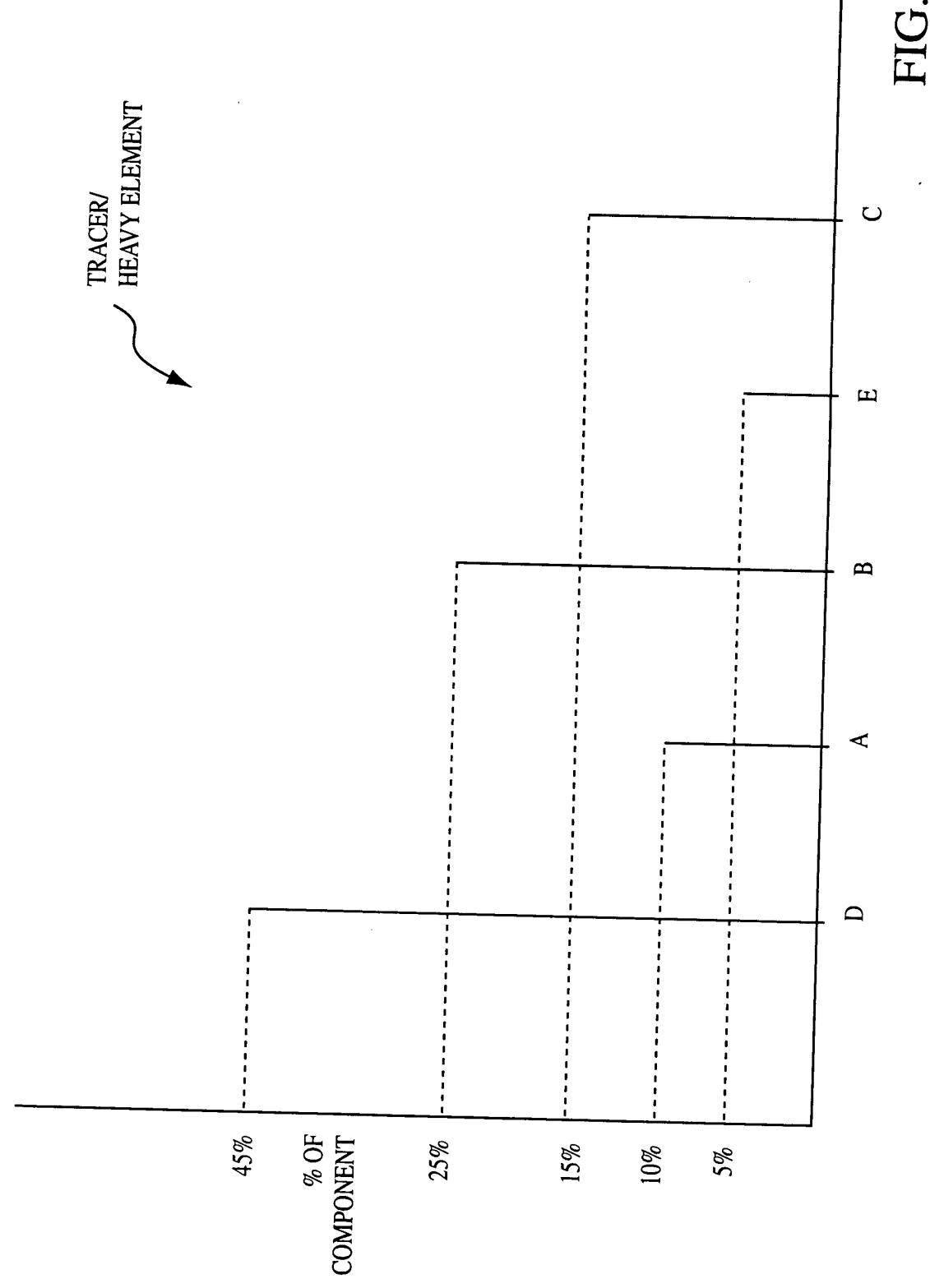


FIG. 16

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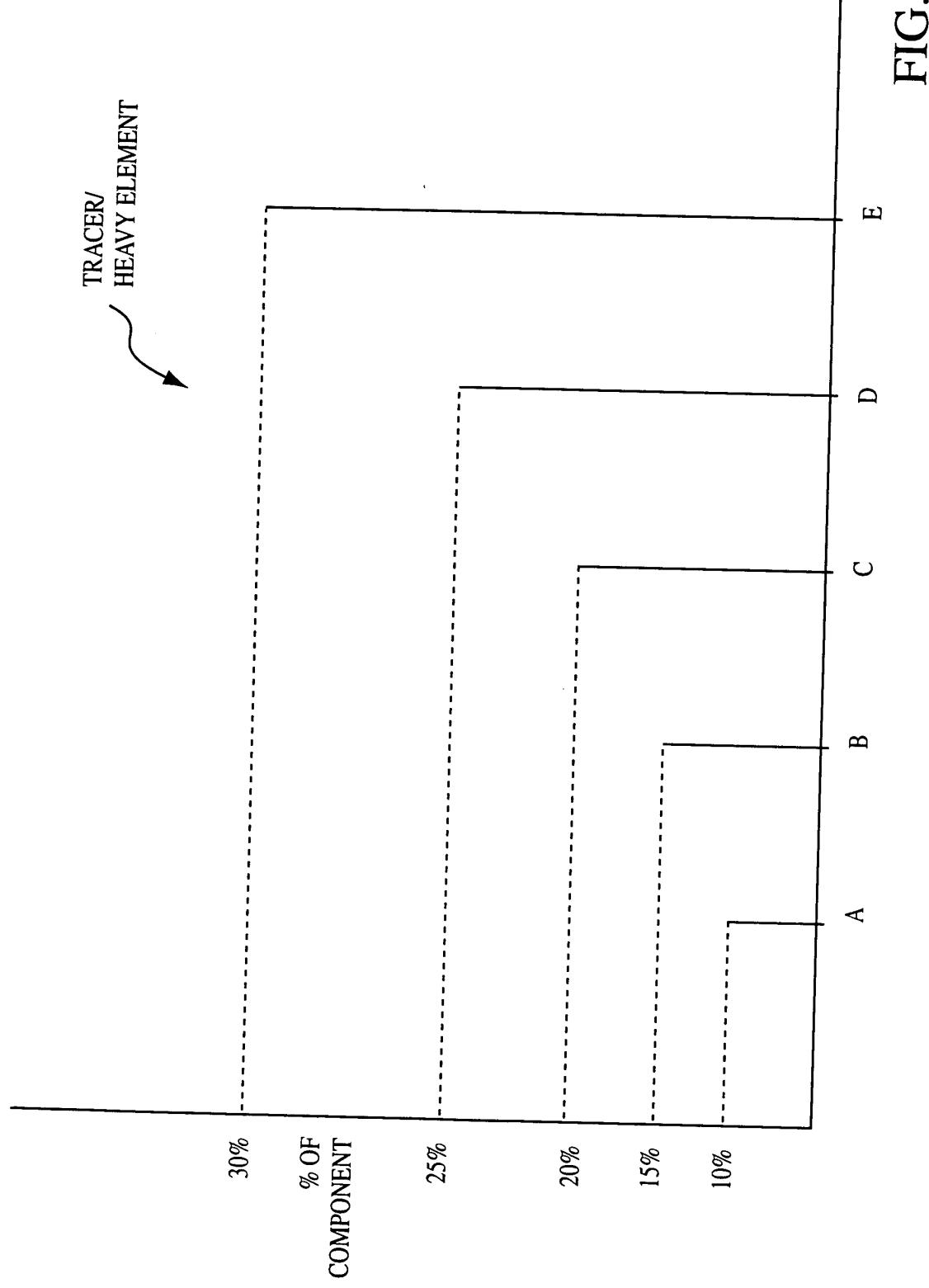
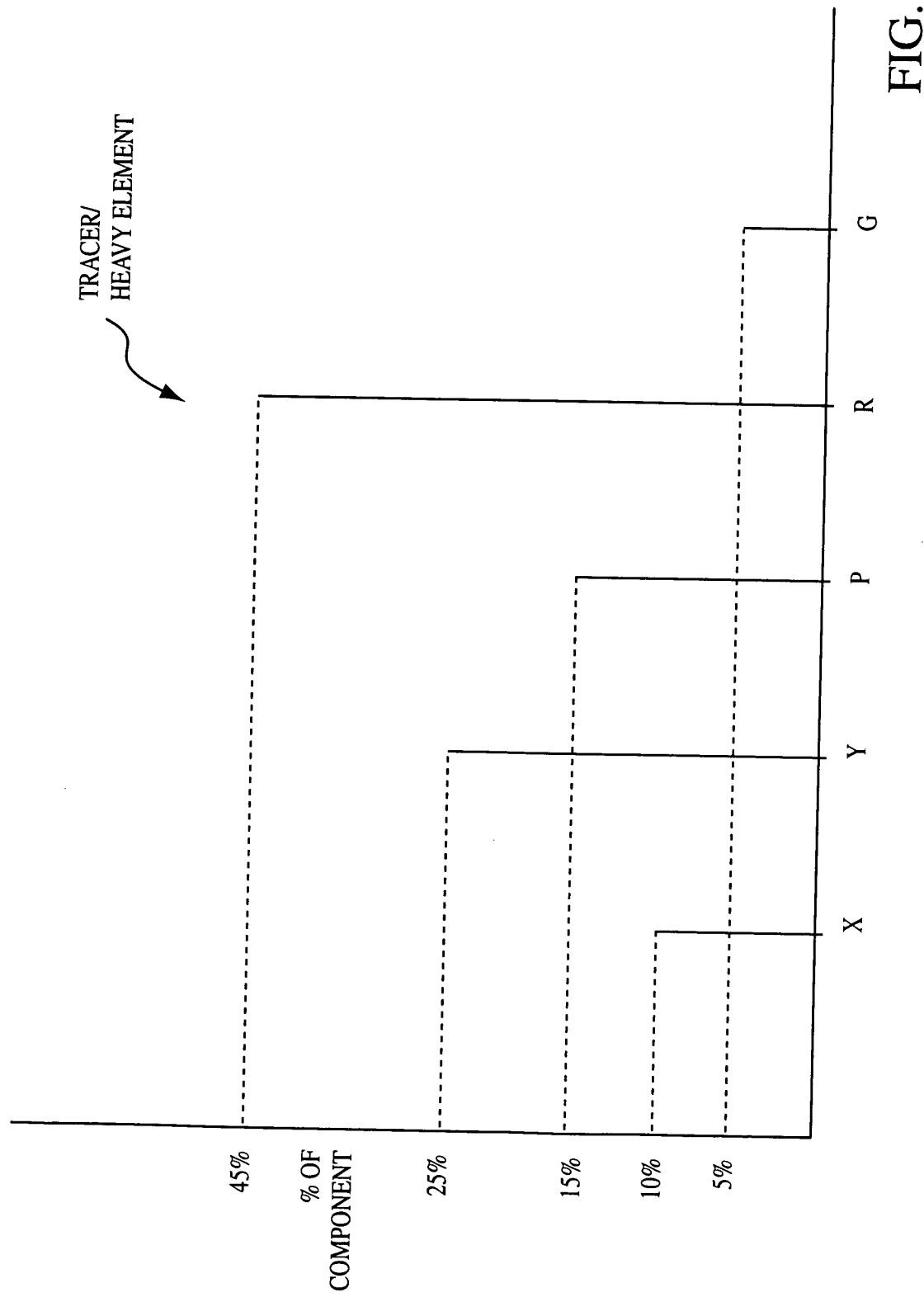


FIG. 17

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TRACER/
HEAVY ELEMENT

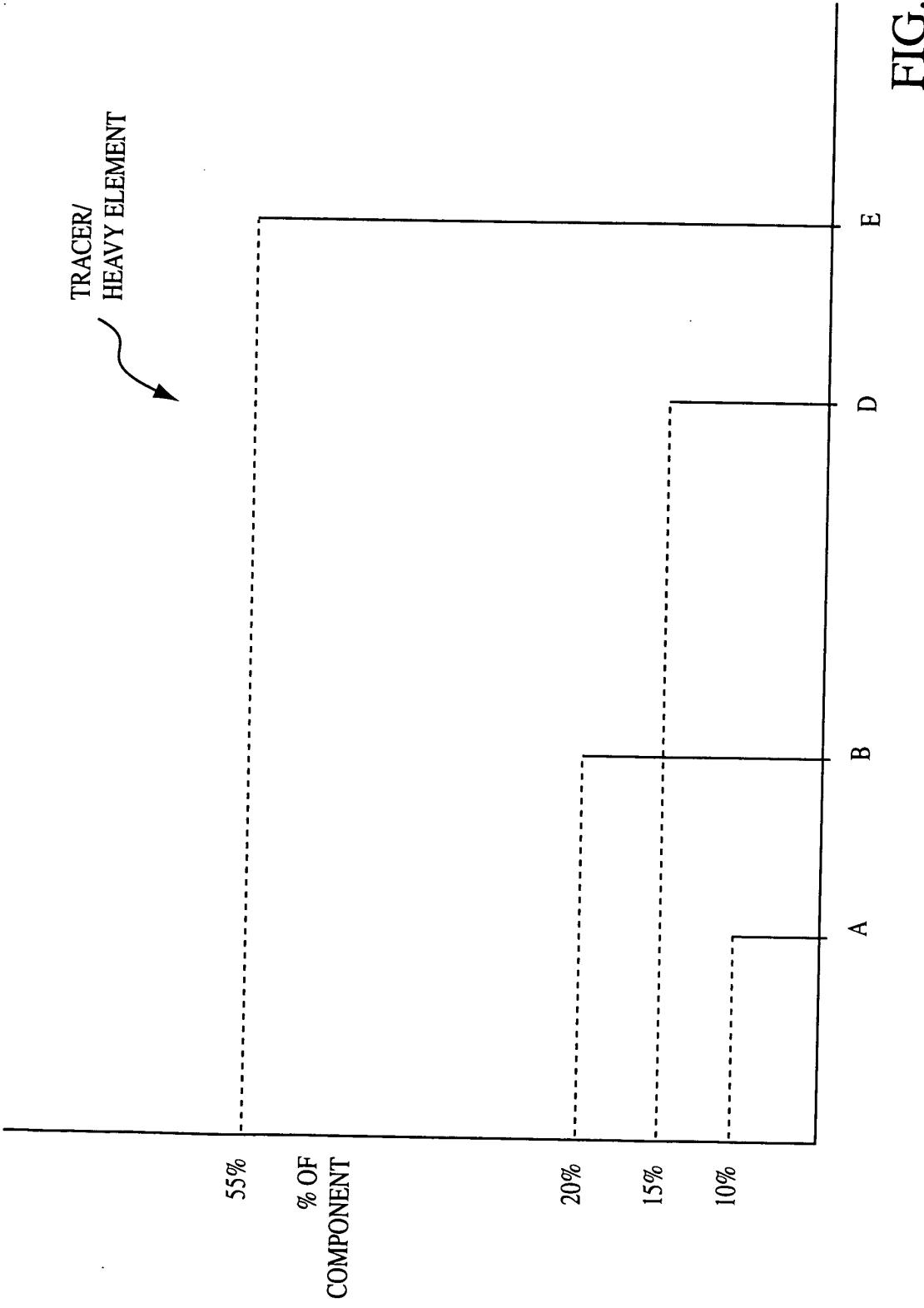


FIG. 19

2025 RELEASE UNDER E.O. 14176

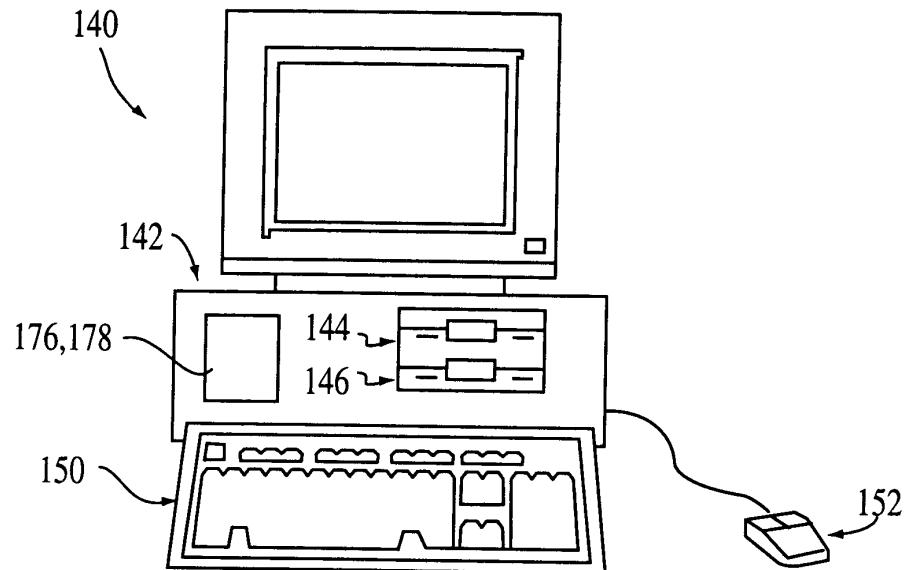


FIG. 20

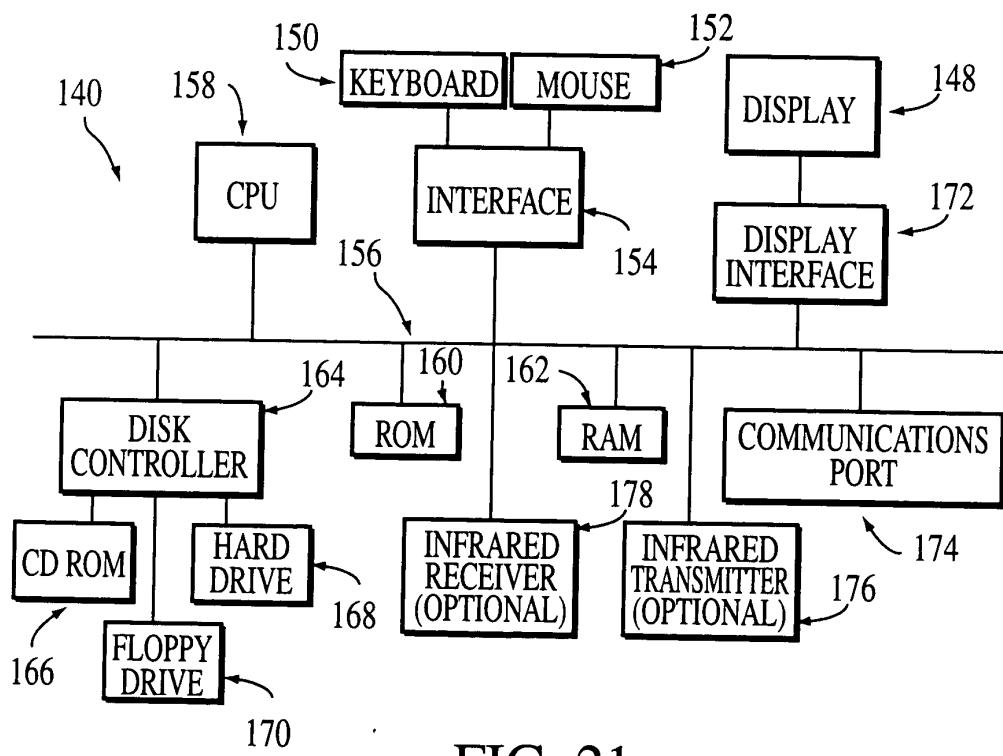


FIG. 21

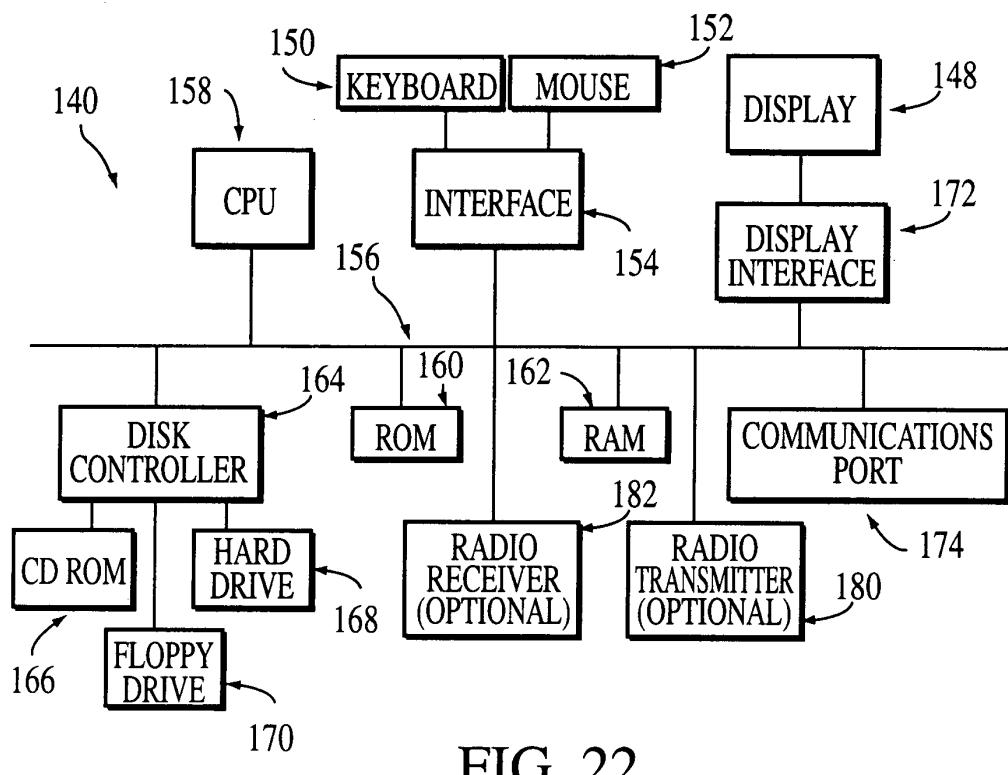


FIG. 22

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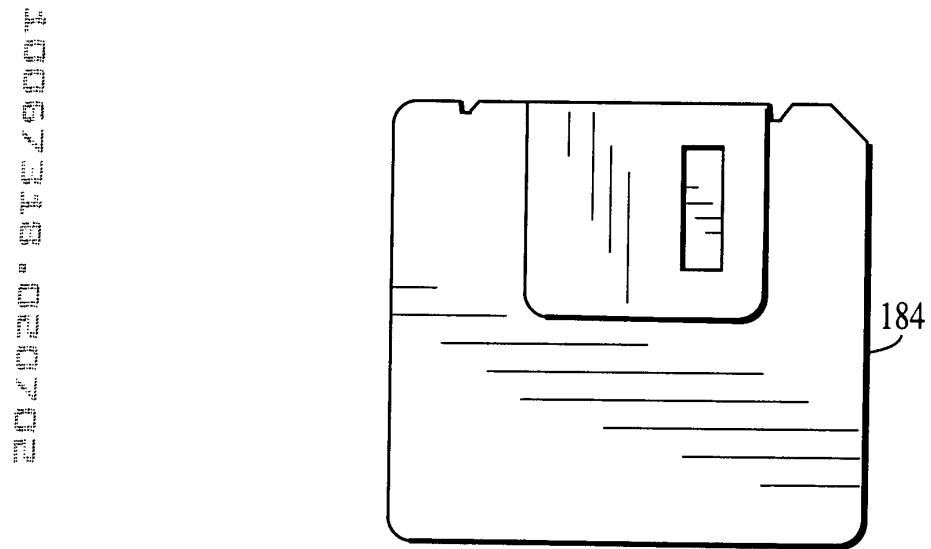


FIG. 23

4,006,734 Patented June 10, 1997

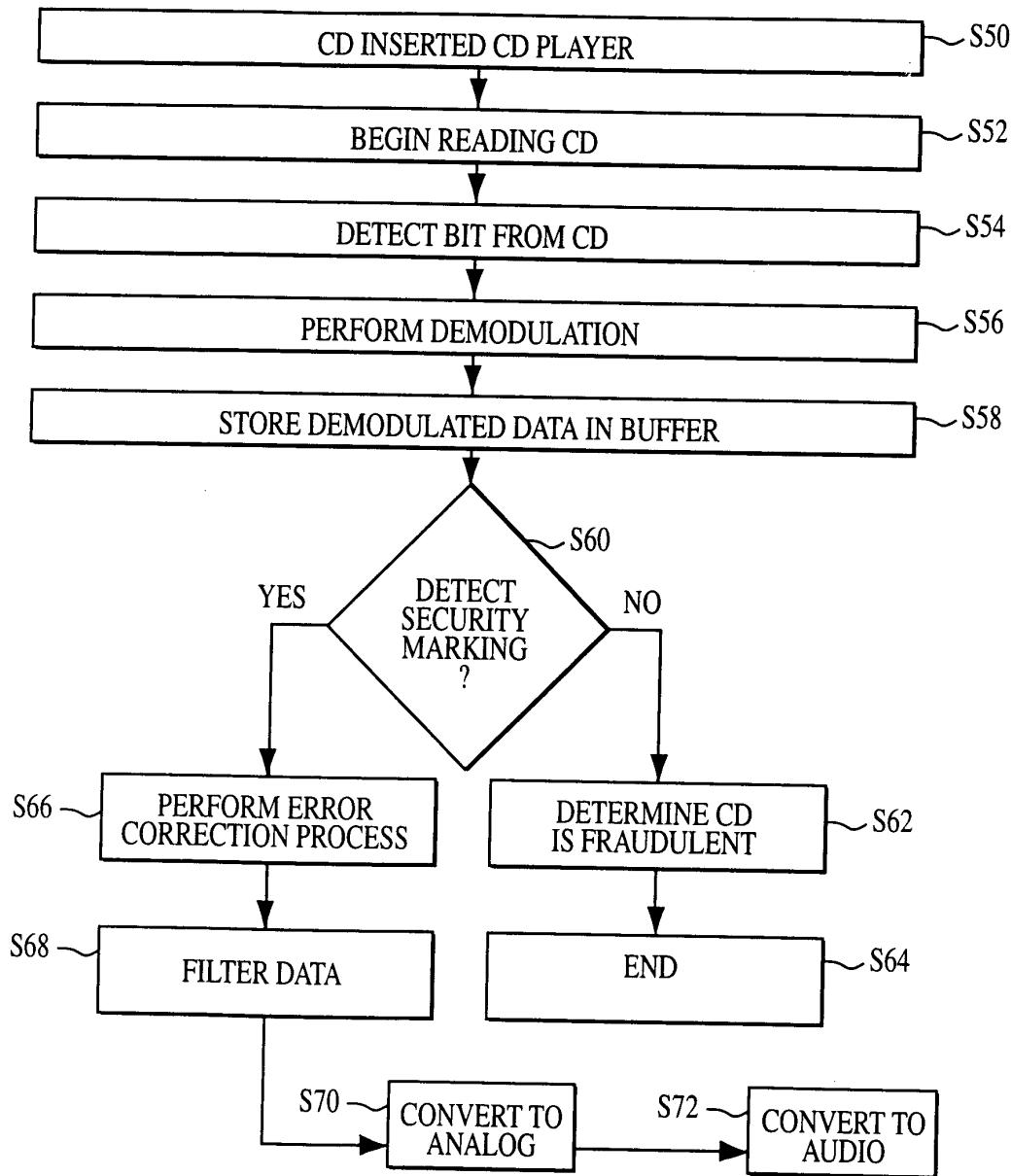


FIG. 24

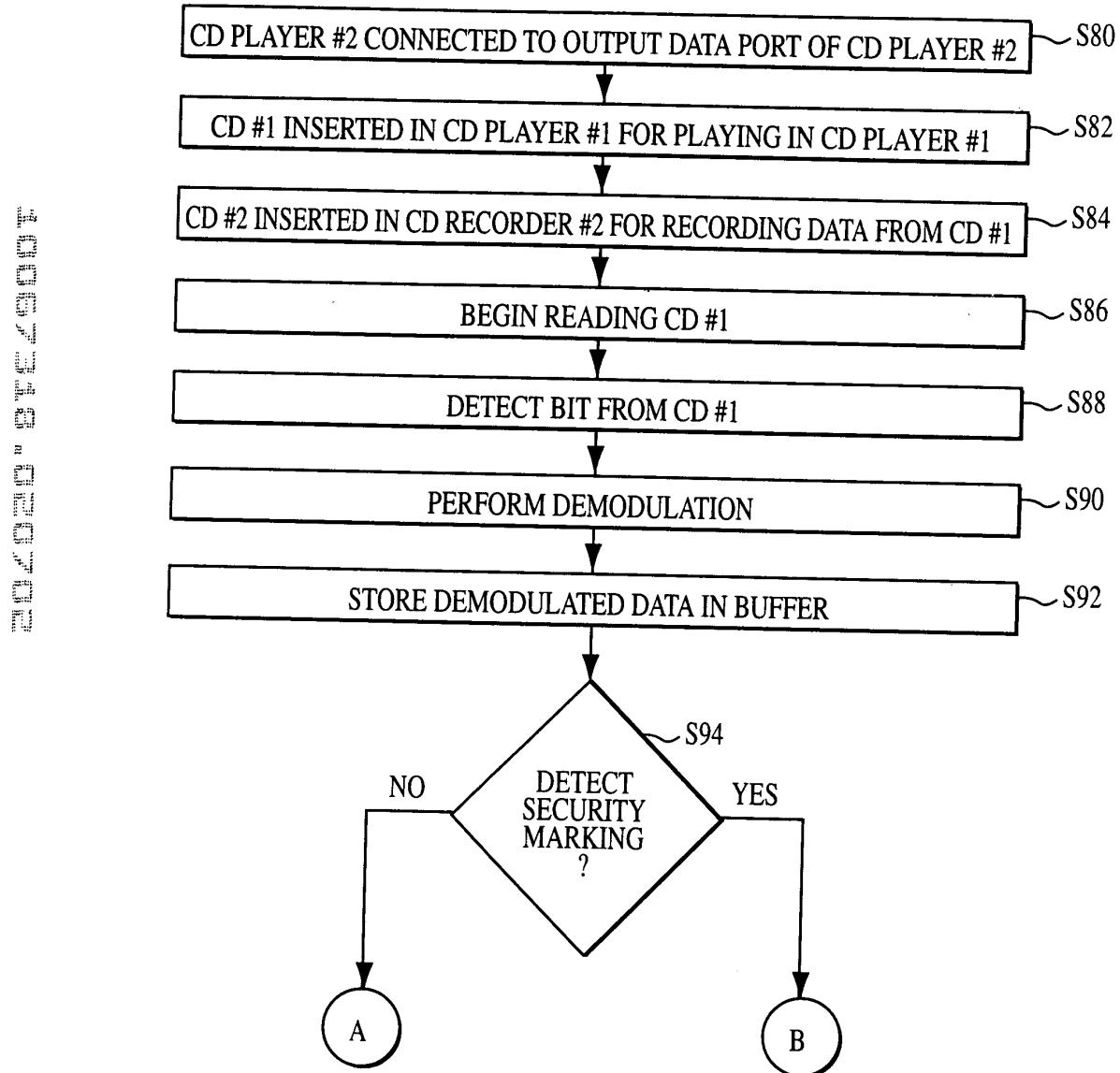


FIG. 25

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4 0 0 6 3 2 4 3 9 1 0 2 0 7 0

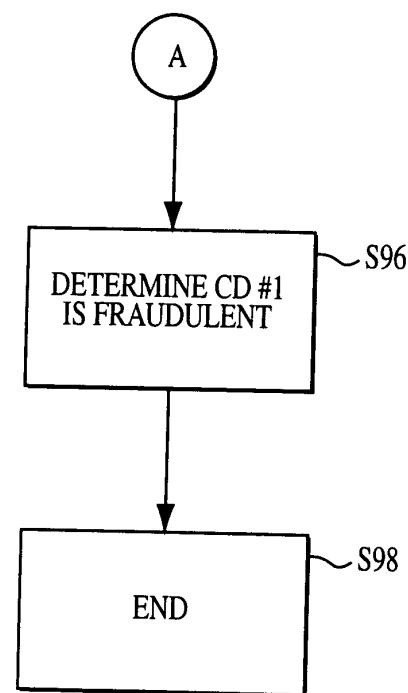


FIG. 26

4706216 - 020202

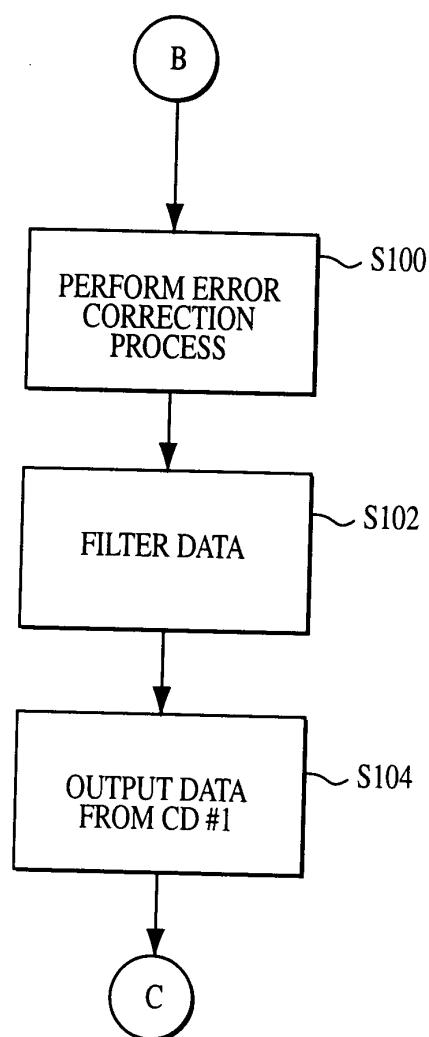


FIG. 27

AUG 29 1993 3:30 PM '93

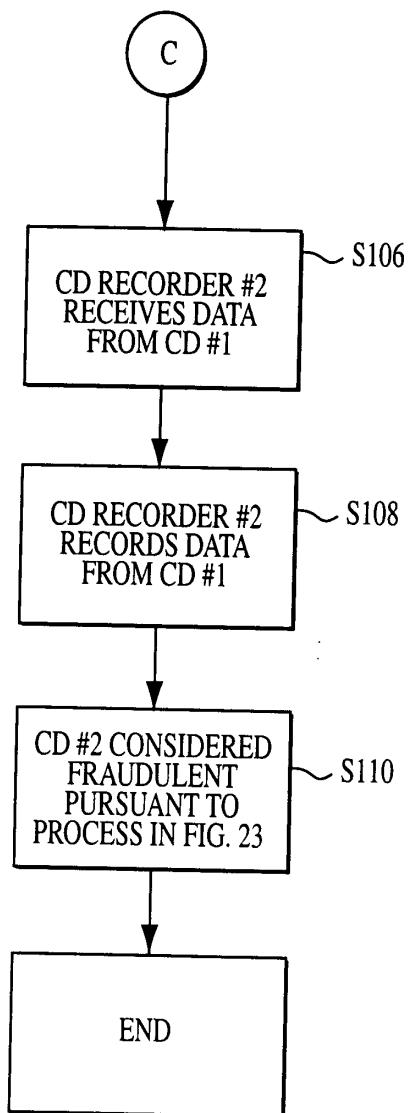


FIG. 28

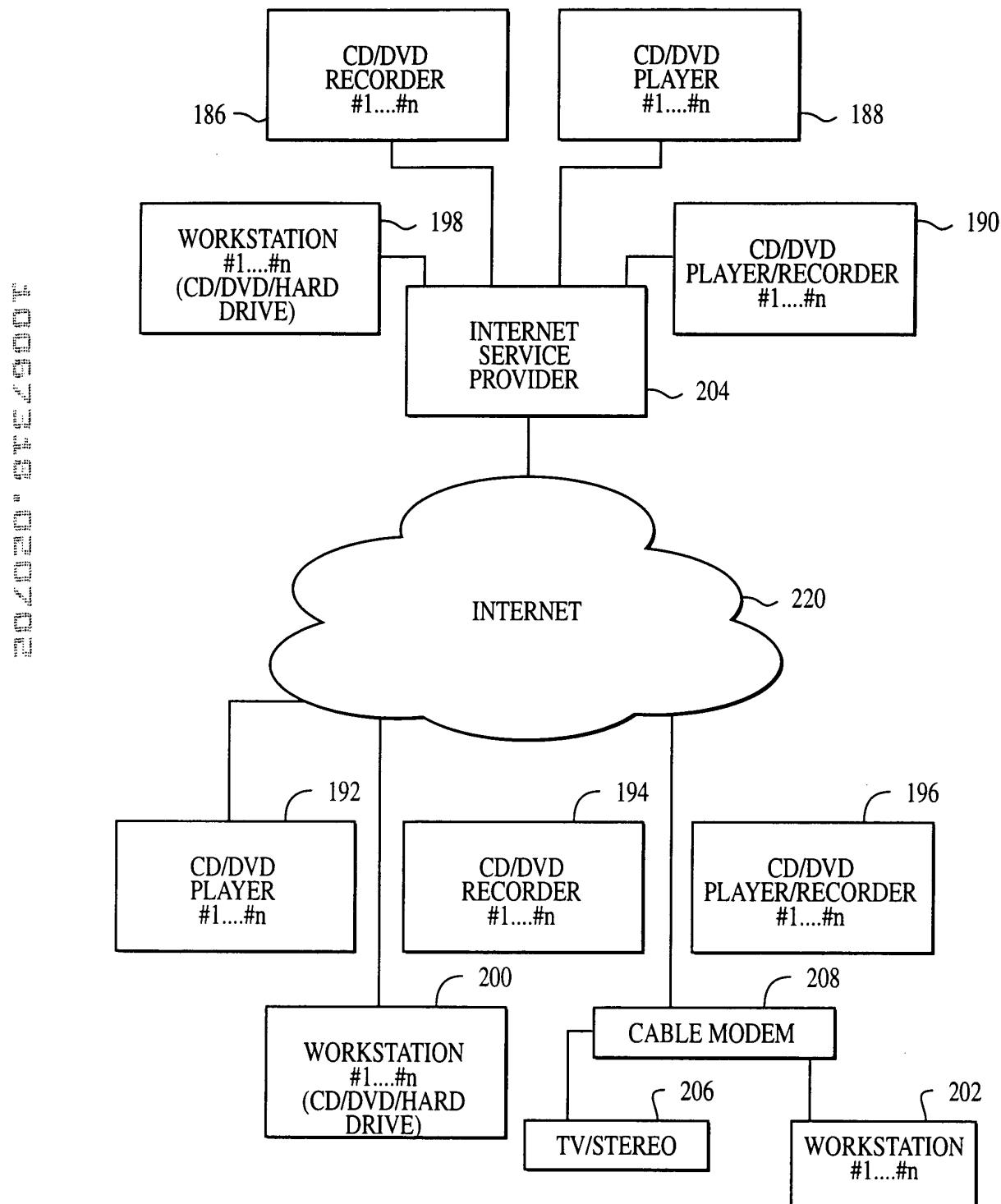


FIG. 29

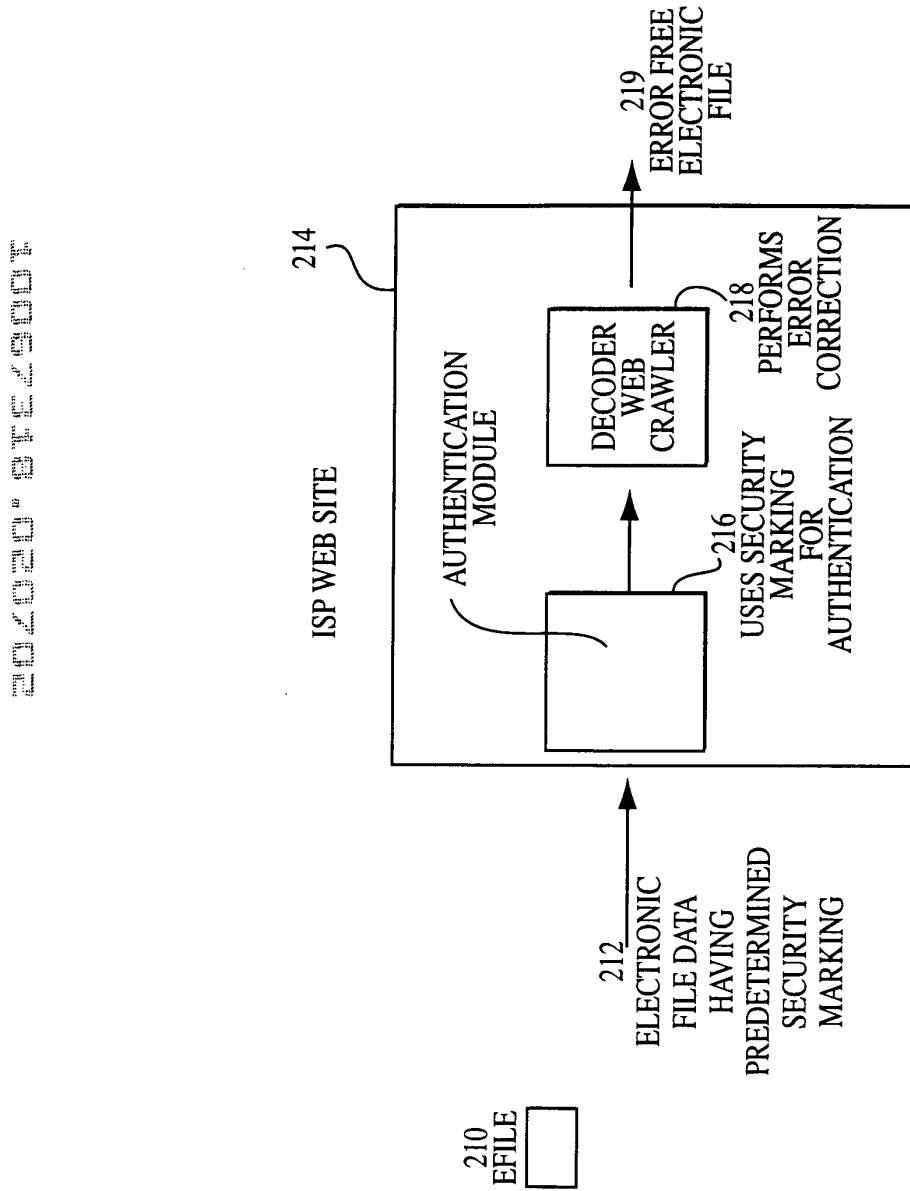


FIG. 30

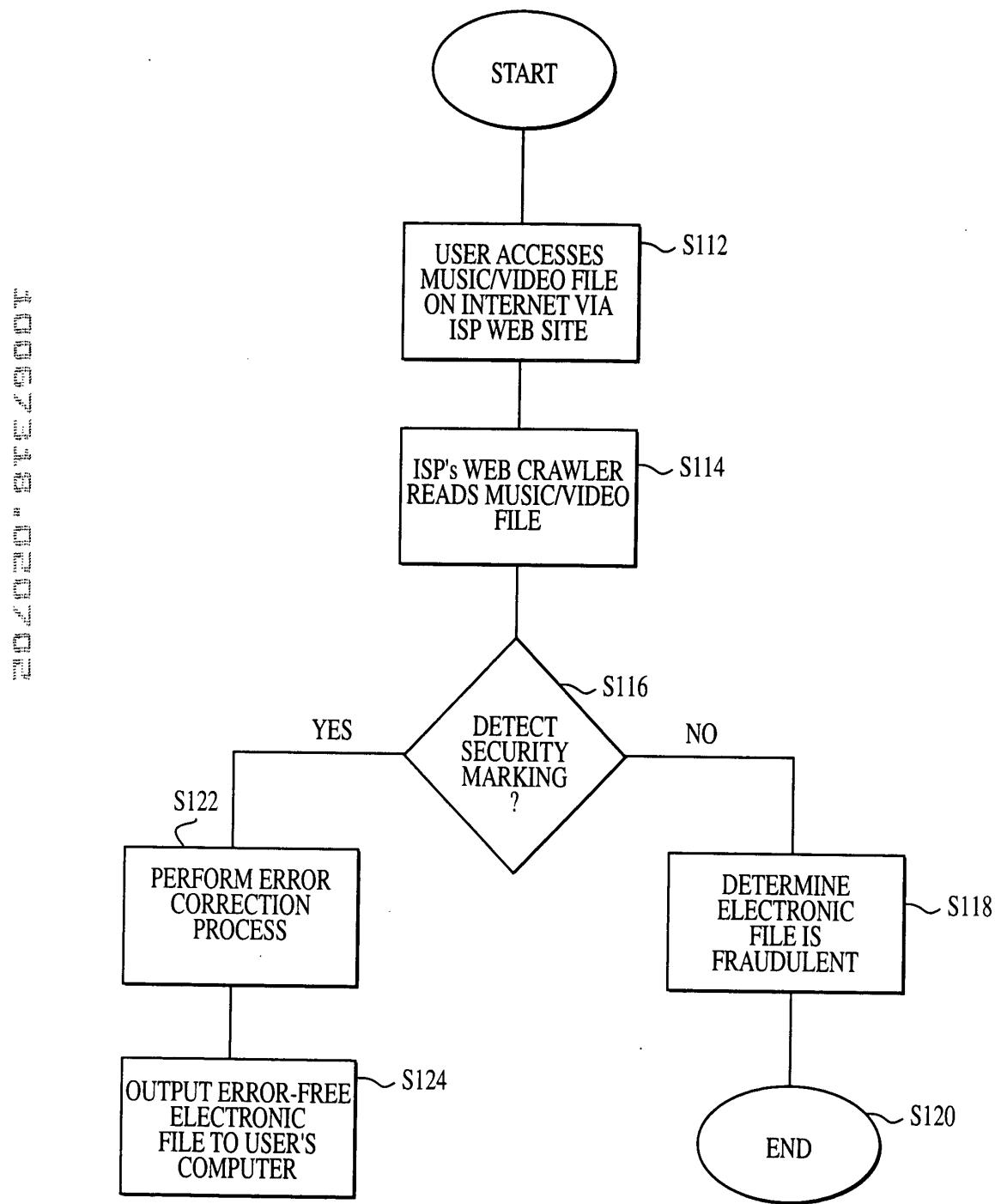


FIG. 31

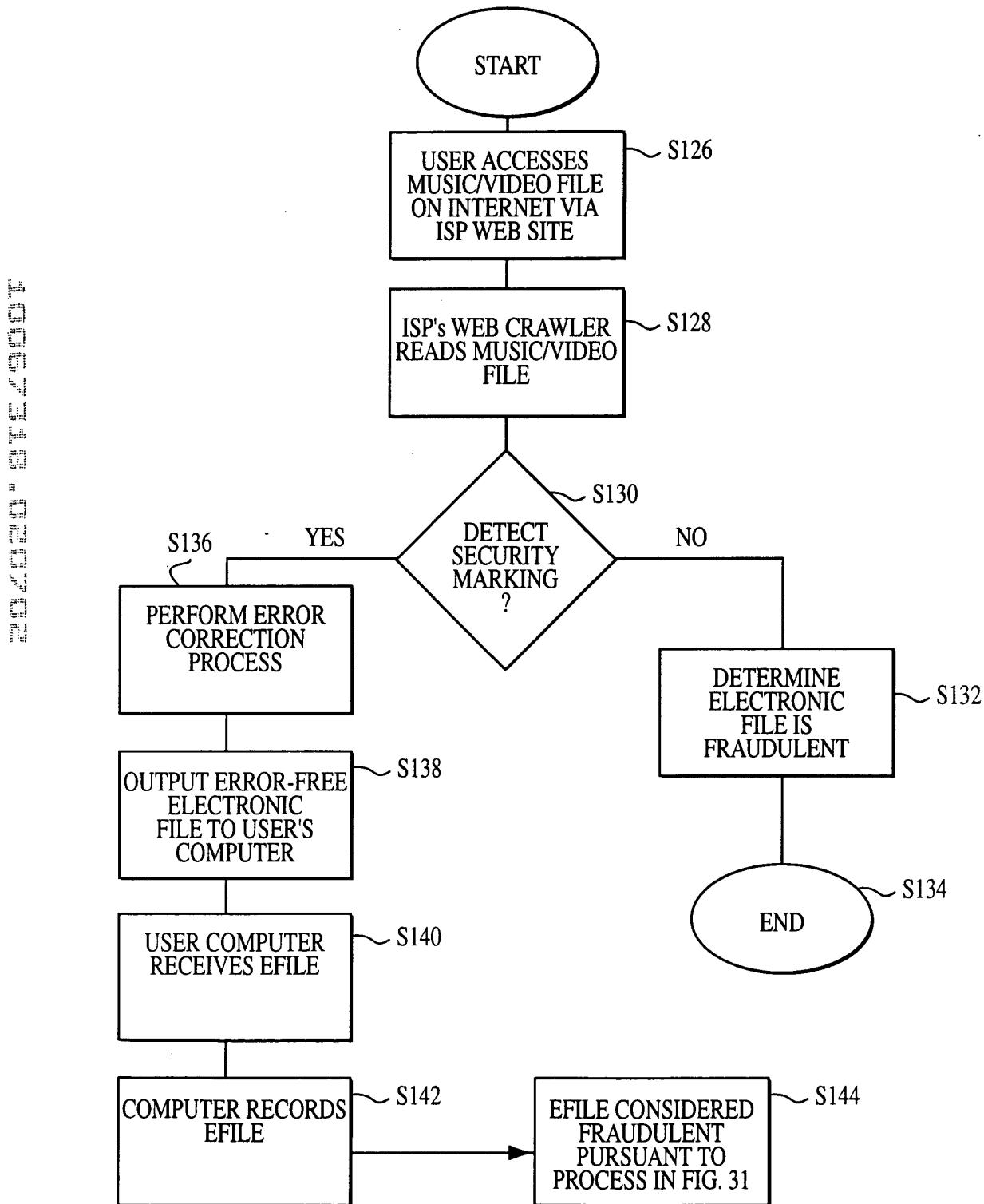


FIG. 32

FIG. 33

